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(21)Application number : 05-274921 (71)Applicant : SUMITOMO ELECTRIC IND LTD

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(54) FORMATION OF OXIDE SUPERCONDUCTING THIN FILM

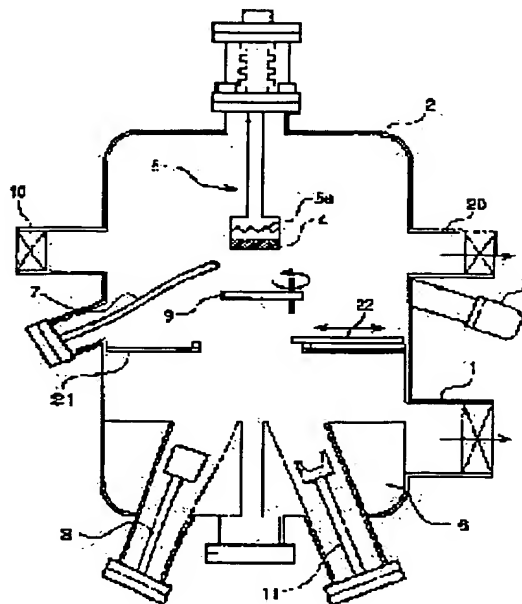
(57)Abstract:

PURPOSE: To improve the surface cleanliness by supplying an oxidizing gas contg. O₂ and the O₃ generated by supplying O₂ contg. Ar to an ozonizer around the substrate and supplying a component element other than O₂ from a K-cell vaporization source to bring about a reaction.

CONSTITUTION: A substrate 4 of MgO, etc., is set on a substrate holder 5, and the vaporization sources of Y, Ba, Cu, etc., are set in a K cell 3, and then a vacuum chamber 2 is evacuated to 1×10^{-9} Torr. An oxidizing gas contg. O₂ Ar and the O₃, generated by supplying the O₂ contg. 1-5vol.% Ar to an ozonizer is supplied on the film forming surface, and the periphery of the substrate 4 is regulated to about 5×10^{-5} Torr.

The substrate 4 is heated to about 700°C

simultaneously with gas supply, the vaporization source to about 1220°C, Ba to about 628°C and Cu to 1000°C, a shutter 9 is opened when a molecular beam generated from the vaporization source is stabilized, and then the formation of film is started at the rate of about 1nm/min. Heating is stopped when a specified film thickness is reached, the film is cooled, and an oxide superconducting thin film of Y₁Ba₂Cu₃O_{7-x}, etc., having a good surface condition is obtained.



LEGAL STATUS

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